

Equostat

The Equostat is a practical complement to Proceq's portable rebound hardness testers as it resolves most limitations associated with the dynamic testing method.

While rebound hardness testers are not suitable to measure very light parts of certain geometries, the portable Equostat is well-suited for testing light, thin-walled or tubular parts.

The Equostat measures according to the Rockwell principle where the penetration depths under a defined preload are measured before and after application of a larger force.

These low-load penetration depth measurements are accurate, rapid and reproducible.

The difference between the before and after penetration depths reflects the plastic deformation and, therefore, the hardness.



Features

- Accurate, rapid and reproducible results from measurement of penetration depth
- Measurements are independent of the material and of the body dimensions
- Testing range from very soft (aluminum) up to very hard materials (case-hardened)
- Integrated conversions (HV, HB, HRC, HRB, HR15N, Rm)
- Transfer of up to 5'000 stored readings to a PC via RS232 using Equolink 2
- Excellent sensitivity down to small penetrations of only a few μm
- The probe can be used in either a clamp, bench press or freehand
- In addition to the R5 probe, all the impact devices of the Equotip 2 and Equotip 3 can be utilized to conduct rebound hardness testing with the same indicating device

Applications

- Quality testing of very soft materials through to very hard materials
- Thin parts, profiles and pipes of a wall thickness ≤ 2 mm, sheets, coiled metals, and pieces as thin as 0.2 mm depending on the hardness level
- Scratch-sensitive and polished surfaces
- Hardness of heat-affected zones near welding seams

Accurate, rapid, and reproduceable results from measurement of penetration depth under defined forces and therefore

- independence of material (no choice of material curves necessary)
- independence of body dimensions and geometry
- measures from one side - no backing necessary

Excellent sensitivity through small penetration of a few μm and therefore particularly suitable for

- scratch-sensitive and polished surfaces
- thin parts, profiles and pipes with a wall thickness ≤ 2 mm
- hardness profile in heat-affected zone of welding seams

Proceq offers accessories such as a hand activated clamp (incl. in the "clamp unit"), a free-hand flat foot (incl. in the "R-H unit") for testing on large surfaces, support adapters for round parts, and a bench press to address individual testing requirements.

Warranties

- Standard 2-year limited warranty on electronic indicating units
- Optional extended warranty periods up to 3 years



BAMR (Pty) Ltd, PO Box 23973, Claremont, 7735, South Africa
 Ph : 27 (0)21 683 2100, Fax : 27 (0)21 674 1485
 Email : sales@bamr.co.za, Web : www.bamr.co.za



*Static Measurement
with test clamp*



*Freehand measurements on large parts
Large flat surfaces*



*Cylindrical parts, pipes
and rods*

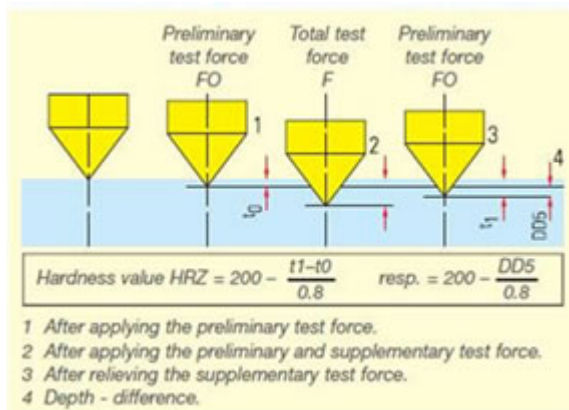


*Special solutions
e.g. measurement on blades
with chamfer*

Standardization

- DIN 50157
- DGZfP Guideline "Mobile Härteprüfung"
- VDI/VDE Guideline 2616 Paper 1

The EQUOSTAT measuring principle



Technical Specifications

Integrated conversions

EQUOSTAT:

HRZ - HV - HB - HRC - HRB - HR15N - Rm

EQUOTIP:

or all EQUOTIP impact devices (see EQUOTIP prospectus or operating instructions). You can also enter user-specific conversions.

Equostat unit incl. R5 probe

Measuring Range:	Rockwell HRZ	equivalent hardness / tensile strength
	20 - 195	21 - 1003 HV
	20 - 185	20 - 691 HB
	100 - 160	14 - 108 HRB
	151 - 195	19 - 70 HRC
	140 - 195	58 - 94 HR15N
	115 - 180	280 - 2150 N/mm ²
Measuring Accuracy:	±1.5 HRZ (±2.0 HRC) throughout the entire measuring range	
Resolution	0.1 HRZ; 1 HV; 1 HB; 0.1 HRB; 0.1 HRC; 0.1 HR15N; 1 MPa (1 N/mm ²)	
Total Testing Force:	50N	
Penetration Depth:	soft materials approx. 80 µm hard materials approx. 15 µm	
Conical Test Tip:	diamond cone: point 80°	
Test Object:	thickness: min. 0.2 mm	surface finish: N6; RA = 0.8 µm
	external dia.: min. 3 mm	coating thickness: min. 0.1 mm
	internal dia.: min. 116 mm	
Testing method	static low-load Rockwell	
Available probes	R5 (also Leeb rebound probes can be used)	
Test load	preload 10N, total load 50N	
Min. radius of surface curvature	1.5 mm	

Equotip 2 indicating device



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Dimensions	175 x 180 x 80 mm
Weight	750 g (incl. batteries)
Material	shock resistant ABS plastic
Display	large LCD
Connections:	probe EQUOSTAT R5 / all EQUOTIP impact devices / RS232 C / AC adapter (9V DC, 0.2A)
Data Memory:	non-volatile memory for approx. 6000 measurements, data output to an printer and PC (on line).
Communication	RS232 C
PC application	Equolink 2 software included
Battery type	standard size "AA" cells (LR6) for about 65 h operation
Operating temperature	0 - 50°C
Transfer of the total data memory to a PC (e.g. into an EXCEL-table).	
Date / Time:	saved with the measurement series

Operation of the Equostat

The EQUOTIP 2 indicating device detects which sensor or impact device is used. The appropriate measuring function is activated automatically. The user can set the indicating device to his requirements with just a few keys. The selected settings are saved until changed – also after switching off.

In the measuring mode the large LCD display informs of the current situation. At a glance:

- converted measurement value (HRC)
- hardness value HRZ
- (measured value)
- lowest value (min.)
- highest value (max.)
- range (R)
- standard deviation (s)
- mean value (HRZ)
- converted mean value (HRC)
- measurement No.
- consecutive measuring series no

Shown in the information line:

- probe EQUOSTAT R5
- diameter correction
- mean value automatically after 3 measurements
- conversion to HRC



Ordering Information

350 00 105 EQUOSTAT Hardness Tester (see picture)

Includes :

- Indicating device EQUOTIP 2,
- probe EQUOSTAT R5 with measuring clamp (support Z0 fixed) and 1.5 m cable,
- 1 set of supports Z1/Z2/Z3/Z4
- 1 test block R3, 1 set servicing tools,
- Carrying case 450 x 385 x 110 mm
- Total weight 4.3 kg



350 00 106 EQUOSTAT R-H for free-hand measurements on large flat surfaces.

Includes

- Indicating device EQUOTIP 2,
- probe EQUOSTAT R5 with conical flat foot R-H and 1.5 m cable,
- 1 test block R3, 1 set servicing tools,
- Carrying case 450 x 385 x 110 mm
- Total weight 3.3 kg

Optional Accessories

EQUOLINK 2 software, download from www.proceq.com

330 00 456 Transfer cable to PC

350 74 994 Printer cable



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